What is claimed is:

1. A bipolar battery comprising:

a plurality of bipolar electrodes;

each of the plurality of bipolar electrodes being provided with:

a current-collector;

a positive electrode layer formed on one side of the current-collector; and

a negative electrode layer formed on the other surface of the current-collector;

electrolyte layers formed between adjacent ones of the plurality of bipolar electrodes, respectively, so that the plurality of bipolar electrodes are stacked in a stacking direction by interposing the electrolyte layers between adjacent ones of the plurality of bipolar electrodes, respectively;

sealing portions surrounding and sealing the electrolyte layers, respectively; and

contributing members contributing to keeping gaps between the adjacent ones of the plurality of bipolar electrodes, the contributing members being disposed within areas of the sealing portions, respectively.

2. The bipolar battery according to claim 1, wherein the sealing portions are located to surround those peripheries of the contributing members along a direction perpendicular to the stacking direction, respectively.

3. The bipolar battery according to claim 2, wherein the contributing members are disposed to spread between the adjacent ones of the plurality of bipolar electrodes, respectively, and the sealing portions are disposed to fill the gaps between the adjacent ones of the plurality of bipolar electrodes so as to encapsulate the contributing members within the sealing portions, respectively.

4. The bipolar battery according to claim 1, wherein the contributing members are discrete spacers having heights in the stacking direction so as to spread between the adjacent ones of the plurality of bipolar electrodes, respectively.

5. The bipolar battery according to claim 4, wherein the widths of the spacers in directions perpendicular to the stacking direction are narrower than the widths of the sealing portions in the directions perpendicular to the stacking direction, respectively.

6. The bipolar battery according to claim 1, wherein the contributing members are continuous spacers having heights in the stacking direction so as to spread between the adjacent ones of the plurality of bipolar electrodes, respectively.

7. The bipolar battery according to claim 6, wherein the spacers have openings penetrating through the spacers in directions perpendicular to the stacking direction, respectively.

8. The bipolar battery according to claim 7, wherein the sealing portions are made of resins which surround the spacers while penetrating through the openings of the spacers, respectively.

9. The bipolar battery according to claim 7, wherein the widths of the spacers in directions perpendicular to the stacking direction are narrower than the widths of the sealing portions in the directions perpendicular to the stacking direction, respectively.

10. The bipolar battery according to claim 6, wherein the spacers are made of porous material.

11. The bipolar battery according to claim 10, wherein the porous material is an unwoven fabric.

12. The bipolar battery according to claim 10, wherein the widths of the spacers in directions perpendicular to the stacking direction are the same as the widths of the sealing portions in the directions perpendicular to the stacking direction, respectively.

13. The bipolar battery according to claim 1, wherein the positive electrode layer comprises a positive active material including lithium-transition metal complex oxide, and the negative electrode layer comprises a negative active material including carbon or including lithium-transition metal complex oxide.

14. The bipolar battery according to claim 1, wherein the electrolyte layers include separators impregnated with electrolytic solution, respectively.

15. The bipolar battery according to claim 1, wherein the electrolyte layers include polymer gel electrolyte, respectively.

16. The bipolar battery according to claim 1, wherein the electrolyte layers include polymer solid electrolyte, respectively.

17. The bipolar battery according to claim 1, wherein a plurality of the bipolar batteries are connected to constitute a battery module.

18. The bipolar battery according to claim 1, wherein the bipolar battery is utilized as a power source of a vehicle.

19. A bipolar battery comprising:

a plurality of bipolar electrodes;

each of the plurality of bipolar electrodes being provided with:

a current-collector;

a positive electrode layer formed on one side of the current-collector; and

a negative electrode layer formed on the other surface of the current-collector;

electrolyte layers formed between adjacent ones of the plurality of bipolar electrodes, respectively, so that the plurality of bipolar electrodes are stacked in a stacking direction by interposing the electrolyte layers between adjacent ones of the plurality of bipolar electrodes, respectively;

sealing means for surrounding and sealing the electrolyte layers; and

contributing means for contributing to keeping gaps between the adjacent ones of the plurality of bipolar electrodes, the contributing means being provided in an area of the sealing means.

20. A manufacturing method of a bipolar battery, comprising:

preparing a plurality of bipolar electrodes,

each of the plurality of bipolar electrodes being provided with:

a current-collector;

a positive electrode layer formed on one side of the current-collector; and

a negative electrode layer formed on the other surface of the current-collector;

providing electrolyte layers between adjacent ones of the plurality of bipolar electrodes, respectively;

providing contributing members contributing to keeping gaps between the adjacent ones of the plurality of bipolar electrodes, respectively;

stacking the plurality of bipolar electrodes in a stacking direction by interposing the electrolyte layers between adjacent ones of the plurality of bipolar electrodes, respectively; and

forming sealing portions surrounding and sealing the electrolyte layers, respectively, the contributing members being disposed within areas of the sealing portions, respectively.